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10/540,474	06/23/2005	Manabu Matsui	0445-0354PUS1	2979
2292 7590 03/05/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER STEELE, JENNIFER A				
ART UNIT		PAPER NUMBER		
1794				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/540,474

Applicant(s)

MATSUI ET AL.

Examiner

JENNIFER STEELE

Art Unit

1794

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/5508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 7 and 8 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Huriuchi (US 5,800,230). Claim 7 describes a bulky nonwoven fabric comprising

- heat fusible conjugate fibers
- comprising two components having different melting points
- formed by fusing the intersections of the fibers and
- having a specific volume of 95 cm³/g or more
- a strength per basis weight of 0.18(N/25 mm)/(g/m²) or higher,
- and a bulk softness per unit thickness of 0.14 N/mm or less.

Horiuchi teaches a bulky nonwoven fabric comprising heat fusible conjugate fibers comprises of two polymers having different melting points.

Horiuchi teaches the specific volume of the nonwoven as measured with a 2 g/cm² load and versus a 54 g/cm² load described in Applicants specification. The specific volume of Horiuchi is calculated by the thickness (mm)/basis weight x 1000 (col. 7 and 8, lines 60-67 and 1-21). As Horiuchi measurement has a lower load, the thickness would be greater and result is a different value than Applicant's claims and the Examiner can not determine if the properties can be equated. Horiuchi teaches a relationship between strength and the specific volume in the formula below. Therefore Horiuchi teaches that formula requires the fabric have a specific volume of 15-35 cc/g to achieve the desired strength.

$$Y^2 = 1.25X + 125$$

(1)

wherein Y is the geometrical mean of vertical and horizontal strength per 5 cm wide and 1 g/cm² nonwoven fabric [unit: g/(g/m²·5 cm)]; $Y = (MD \times CD)^{1/2}$ where MD is vertical strength [unit: g/(g/m²·5 cm)] and CD is horizontal strength [unit: g/(g/m²·5 cm)]; and X=specific volume of a nonwoven fabric [unit: cc/g].

Applicant's claimed properties of strength and bulk softness are measured compared to basis weight, however Applicant does not disclose a basis weight. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- 2112.02

As to claim 8, Horiuchi teaches a nonwoven web wherein the conjugate fibers are thermally fused together at the intersections (col. 2, lines 44-45). Horiuchi does not use the term carded web. A carding process is defined in the Textile Glossary, as "A machine used in the manufacture of staple yards. Its functions are to separate, align and deliver the fibers in a sliver form and to remove impurities. The machine consists of a series of rolls, the surfaces of which are covered with many projecting wired and metal teeth." Horiuchi teaches the spun fibers are blown against a scavenging device before the heat treatment (col. 6, lines 40). Horiuchi also teaches the web can be drawn through pinch rollers applied in multiple stages, can be opened by rotating a roller having a plurality of needle-shaped protrusions or the like. This process is substantially the same as the claimed carding process. Process limitations in claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "*In re Thorpe* , 227 USPQ 964, 966 (Fed. Cir. 1985).

Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433. See also *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. **Claim 1, 4-6, 9-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi et al (US 5,800,230) in view of J. Karger-Kocsis, Institute for Composite Materials "Polypropylene An A-Z reference".** Claim 1 describes a heat fusible conjugate fiber produced by
- High speed melt spinning and after the spinning,
 - A heat treatment or a crimp treatment
 - But no drawing,
 - Which comprises a first resin component having an orientation index of 40% or higher
 - And a second resin component having a lower melting or softening point than the melting point of the first resin component and an orientation index of 25% or lower,

- the second resin component being present on at least part of the surface of the fiber in a lengthwise continuous configuration,
 - wherein said fiber has negative heat shrinkage values at a temperature higher than the melting point or softening point of the second resin component by 10°C,
 - and increases in length upon heating.

Horiuchi teaches a bulky nonwoven fabric and a method of manufacturing the filament nonwoven fabric which is made of conjugated filaments (ABST).

Horiuchi teaches a process of making a conjugate filament including the steps of spinning the conjugated filaments by a spun bond method, blowing the webs by a high-speed flow against a scavenging device and removing the blown high-speed flow from the device, carrying out a preliminary bulkiness treatment; adding crimps and bulkiness (col. 2, lines 35-45). The bulkiness treatment is a heat treatment that is a hot air through treatment at a temperature between the melting point of the low melting point polymer and that of the high melting point polymer (col. 2, lines 60-64). Horiuchi teaches high speed melt spinning followed by a heat treatment. Horiuchi does not teach the filaments are drawn. In example 1, Horiuchi teaches a low melting point polymer of high density polyethylene and a high melting point polymer of polypropylene spun through a conjugated spinning device, where the temperature was 260°C for the sheath section and 320°C for the core section. Horiuchi teaches a spun non-drawn filament was pulled by high-speed flux type sucking and removal device at 3000m/min and was blown against the net conveyor along with air flux. The blown air flex was

sucked and removed by the high-speed flux sucking and removal device at the bottom of the net conveyor. Then the floating web was heat through air treatment was carried out at 144°C. As the current application teaches high speed melt spun filaments have take up speed of 2000m/min, Horiuchi teaches a speed that is equated with high speed of claim 1.

Horiuchi teaches a first resin and a second resin wherein one has a higher melting point and the other has a lower melting point and the difference in melting points is at least 15°C (ABST).

Horiuchi differs from the current application and does not teach the property of negative heat shrinkage. Horiuchi teaches a filament with the property of bulking when subjected to heat treatments. Horiuchi teaches the heat treatment with the through air type device is preferable to improve bulkiness (col. 7, lines 10-11). Bulking is equated with increasing in dimension and therefore meets Applicants claim limitation of a negative shrinkage. While, Horiuchi does not teach the fibers increase in length, Horiuchi teaches the fibers bulk, which is an increase in dimension and therefore it is presumed the length of the fiber increases and the property of an increase in length is inherent to the bulking fiber of Horiuchi.

Horiuchi teaches the low melting point polymer, which is equated with the second resin, is on at least one section of the filament surface (ABST).

Horiuchi differs from the current application and does not teach the resin properties of orientation index.

Horiuchi teaches a high melting point resin and a low melting point resin and teaches the resin properties of melt index and crystallinity (col. 8, lines 41-47). Horiuchi does not teach orientation index. Orientation index is defined by Applicant to be the ratio of the drawn fiber birefringence over the intrinsic birefringence. The birefringence of a drawn fiber is dependent on the melt spin processing parameters, evidenced by the reference "Polypropylene, An A-Z Reference". Birefringence is dependent on the spinning take up velocity as found on page 431 which shows birefringence as a function of take-up velocity of a melt spun filaments. As the reference teaches, optimizing the spinning take up velocity would change the orientation index of the resultant fiber. Therefore birefringence and the orientation index is a result-effective variable of the spinning process. As Applicant teaches a high speed process, the claimed orientation index would result from this process or could be optimized to obtain the desired property. While the intrinsic birefringence of the resins employed in the invention could be compared to prior art resins, the property of orientation depends on the process parameters and Examiner will presume that the orientation index as claimed would be a result of employing the resins and process of Horiuchi.

As to claim 1 and 9, it would have been obvious to obtain a conjugate filament that does not shrink when heat is applied motivated by Horiuchi's conjugate filament and method of making a filament that increases in bulk when a heat treatment is applied. It further would have been obvious to measure the orientation index of the resins produced by the process of Horiuchi and determine that the claimed orientation index would produce the bulky conjugate fiber. One of ordinary skill in the art could

have combined the polymer resins, process and process parameters of Horiuchi with the knowledge that the orientation index could be optimized by the spinning process parameters as taught in "Polypropylene" reference with a reasonable expectation of success in producing a conjugate fiber that increases in length when heat is applied.

As to claim 4, Horiuchi teaches a sheath core conjugate fiber.

As to claim 5, Horiuchi teaches the first resin comprises polypropylene and a second resin of high-density polyethylene (col. 8, lines 41-45).

As to claim 6, Horiuchi teaches a nonwoven web wherein the conjugate fibers are thermally fused together at the intersections (col. 2, lines 44-45). Horiuchi does not use the term carded web. A carding process is defined in the Textile Glossary, as "A machine used in the manufacture of staple yards. Its functions are to separate, align and deliver the fibers in a sliver form and to remove impurities. The machine consists of a series of rolls, the surfaces of which are covered with many projecting wired and metal teeth." Horiuchi teaches the spun fibers are blown against a scavenging device before the heat treatment (col. 6, lines 40). Horiuchi also teaches the web can be drawn through pinch rollers applied in multiple stages, can be opened by rotating a roller having a plurality of needle-shaped protrusions or the like. This process is substantially the same as the claimed carding process. Process limitations in claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "In re Thorpe , 227 USPQ 964, 966 (Fed. Cir. 1985).

Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When

the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433. See also *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985)

As to claim 10, Horiuchi teaches a take up speed of 3000m/min in example 1.

As to claim 11, Horiuchi teaches the fibers are not drawn. Horiuchi teaches crimps may be formed right after the spinning process without the preliminary bulkiness treatment (col. 5, lines 49-51). The bulkiness treatment is a heat treatment. Horiuchi is teaching a crimping without a heat treatment.

Response to Arguments

3. Applicant's amended claim 1 and the previous 35 USC 112 2nd paragraph rejection of claim 1 has been withdrawn.
4. Applicant's arguments, with respect to claim 4 have been fully considered and are persuasive. The 35 USC 112 2nd paragraph rejection of claim 4 has been withdrawn.
5. Applicant's amendment and arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. Applicants amended claim 1 to clarify that the heat shrinkage of the fibers is negative and the fibers increase in length upon heating. As a result of the clarification a new grounds of rejection over Horiuchi and Horiuchi in view of reference handbook "Polypropylene" is presented in this Office Action.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **JENNIFER STEELE** whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 1794

/Elizabeth M. Cole/
Primary Examiner, Art Unit 1794

2/25/2009